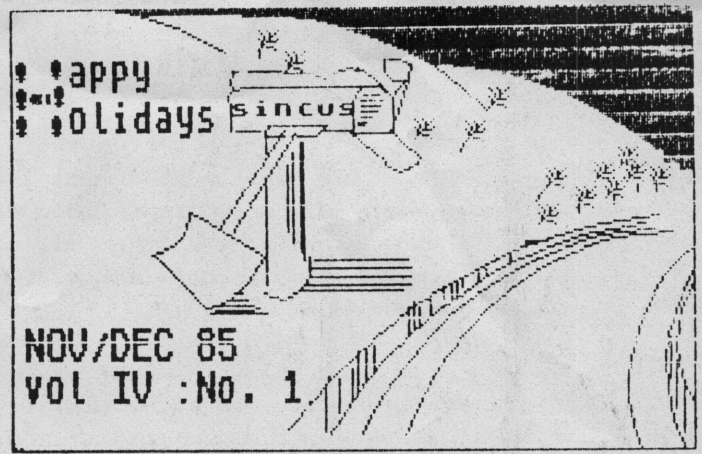


BEST
20N86

SINCUS NEWS



sinclair computer user's society
P.O. BOX 36, Johnson City, NY 13790

Secretary's Notes: October 85 Meet;

October 16, 1985-Vestal Library, 7pm
17 members attending. Clyde Tackley brought his new RGB monitor and RGB interface he purchased from E. Arthur Brown Co, 3404 Pavnee Drive, Alexandria MN 56308, for \$22. Gary Ennis brought along a composite color monitor for comparison. Clyde ran thru the installation procedure-quite simple, and the results, if you are used to using the old family TV are simply great! F-15 Fighter Pilot was a whole new program on RGB. Composite monitor is a poor second.

Wes demoed his hardware, an omni board with a EPROM which will load the impossible to copy Spectrum software and make it a breeze to copy. The EPROM dups the Spectrum ROM and in the spare unused space Wes added a bootstrap and a couple more goodies, a 64 column driver and an interrupt routine. The status of CLONE was discussed, it now is out of the test stage and ready for marketing. As soon as the documentation is finished the software will be marketed. The questions of how are still unresolved and will be addressed at the November meet.

The increase in dues was discussed and the bi-monthly newsletter change from monthly should keep the dues the same for another year. A plea for local members to pay this years dues went out, Thanks to Jerry K. one more renewed. The Nov/Dec issue will be the last for local members not having renewed.

Gary E. hopes to have the Timex disc system up and running at the next meet.

November 20 Meet;

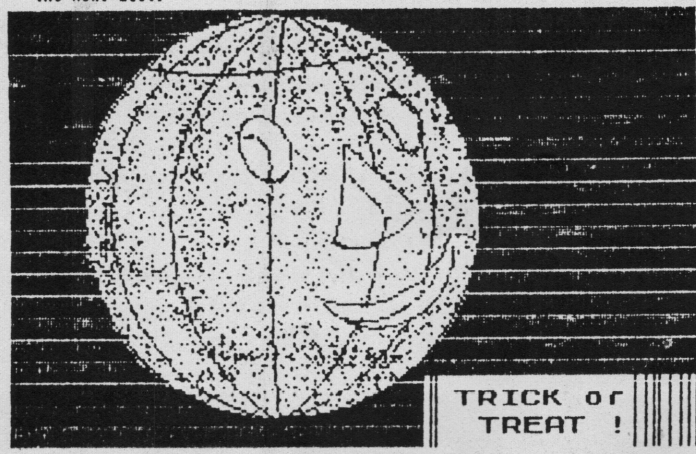
November 20, 7pm, Vestal Public Library- 16 members attending. Gary Ennis was at the GE Computer club demoing the Amiga. To help ring in our fourth year, pizza and coke for all. Wes Brzozowski, our wizard emeritus, paused to remember how it was about 10 years ago. With the help of ads from a BYTE mag of 1977 vintage, the what was at how much was brought home with the current prices and hardware. The early software available for the ZX81 and first TS1000 was almost embarrassing crude compared to the arcade games available today. Also Wes remember how things were at the first meets of SINCUS-quite a crowd- over 50 attending the first meeting. A number had other computers and didn't return. Wes was demoing "The Edge", an arcade game on the composite color monitor that Carl Morris brought in. The status of CLONE is nearing the market. A final test of the documentation and the software will be ready for sale.

-----NOTICE-----
Our yearly bout with winter is about to start, and if the Broome County Sheriff's department declares a SNOW EMERGENCY on the day of the meeting, the meeting is CANCELLED. If it looks nasty out then think twice before risking life and limb. Drive safely!!

-----NOTICE-----
If in doubt about the meeting call me at 798-7219 after 5pm, or call the library, as I will notify the library in case of cancellation.

A couple members are looking into the QL! If they can get a couple questions answered, then the QL comes to the area!

Best wishes in the New Year and Have a Happy Holiday- from all of us here upstate New York and Pennsylvania to all our readers around the world!



T/S 2068 BASICS AND BEYOND
BY SHARON Z. AKER

I read of this book in Mark Fendrick's COMPUTER SHOPPER column, *Timex/Sinclair Survival Column* earlier this year and have been looking for it since. Last month I got a flyer from Sunset Electronics, 2254 Taraval St., San Francisco, CA 94116, and there it was, and two weeks later I had it in my hands.

I was DISAPPOINTED! I skimmed thru it looking for the BEYOND, not finding any put it down. But that isn't the end of the story. A couple days later while down with the latest version of the flu, I was looking for anything to read and picked up Aker's book and began reading, and found that I had the name of the book WRONG! In the Sunset ad, it says TS2068 BASIC and BEYOND, but the title is T/S2068 BASICS and BEYOND. So I was looking for something beyond BASIC, not Basics. So I reread the book in this light and it does the job and very well indeed. The book is for the new user, and for anyone without a proper education in computer sciences, this takes you by the hand thru all the keys you look at but are afraid to ask about. Anyhow the reader should sit in front of the 2068 when reading this to try out each step and learn something new. I've been around Sinclair Basic for almost four years, and have learned several new uses of the logic keys.

The chapter on BEEP and SOUND is not disappointing. Ms. Aker covers the basics of music, mergers that with the sound chip, and gives you something to experience. While on SOUND and BEEP, Mark Fendrick, see first paragraph, is writing on same in his column, it started in the Nov. 85 issue. Mark also wrote a piece in the ZX Computing magazine (England) Nov/Dec 85 issue reviewing Ms. Aker's book and gave it very good marks. I paid 9.95 plus s & h for the book-and unless you are past BASIC, this could be a plus in your library.

Paul Hill, SINCUS

News and Views

EMC put out a very neat catalog, if you didn't get one write to Bob Dyl, 15 Kilburn Ct, Newport, Rhode Island 02840. Much new and low priced Spectrum software, and QL software. If you tend to drool over the Christmas Sears Catalogs, then get your bib ready for this one!

SUMWARE-new address folks-they moved from the snow belt to the sun belt-SUMWARE, PO Box 13, Ellenton, FL 33532-0013. They still have much TS hardware- the modem, printer and recorder among all their latest material for Spectrum and 2068 machines. They also ad the Portugese disc and 2068, so if you're in the neighborhood stop in, if not, drop 'em a line.

TIME DESIGNS sent us a sample of their latest effort. Congrats! to these folks on their first anniversary. To subscribe write to them at 29722 Hult Rd. Colton, Oregon 97017.

In the Sep/Oct issue of this column, I wrote some views on software pirating. In the Nov 85 issue of the Computer Shopper, there is part one of a two part column on this same subject. One view that I hadn't considered is that pirates really help spread the word about the good or bad, and help the vendors with

customers with problems. Maybe the pirates ought to look into taxing the programmers for all the help that they've been. Another column came across with a new idea- called site licensing for user groups/companies to purchase the right to produce a limited number of legit copies for a price. The Computer Shopper carries a lot, if you dont get this you arent doing yourself a favor-write: 407 S. Washington Ave. POB F Titusville, FL 32781

Oct 27,'85 NY TIMES carried a full page ad from IBM for the PCjr. Boy it looks like everybody is playing the Coke game! (you remember NEW Coke?) and on the next page you could get a jr for less than \$700 with color monitor!

ZX Computing Oct/Nov 85 issue arrived October 26 arrived from England, quite a decent magazine. If you have a Spectrum or a ZX81 and 2068 users can learn a bit too! Over 120 pages for \$16 (US) with group discount. The Spectrum is THE home game computer overseas by far. Single subscriptions are \$19.50 surface mailed to your address: ZX Computing, Infonet Ltd., Times House, 179 The Marloves, Hemel Hempstead, Herts, HP1 1BB, use a Visa card for ease of money transfer. The differences in language are not enough to cause one confusion- anticlockwise for counterclockwise-and with enough British TV on our Public TV Network one does feel familiar with the phrases. Quite.

Excerpts from conversations on T/S channel on CompuServe, thanks to Clyde Tackley...much on in October about Disc drives and what is better 3" or 5.25" or 3.5" or...many opinions on quality of systems, but some are from sellers of same...reported that Bob Dyl is having problems with Timex Portugal on getting Disc drives, and that goes for Zebra too. Ramex system had one rooter and a blurb that they are trying the Amdek 3" DD system with Kempson IF...Aerco has its side well presented and detractors present too...a few of our corresponding members are on quite frequently, a couple from Canada and California...if you are in a hurry to solve a problem on you Sinclair system, the CompuServe T/S channel can get the attention of several users around the country and Canada in a hurry and perhaps get headed in the right direction as to finding a solution. Items for sale, hints and little tidbits on different products are there by the foot! Clyde's printout was over 17 feet long-2 columns wide!!

SUM-3224 Northwest 30th Avenue, Gainesville, FL 32605, Sept 85 issue is very slick! Have opinions on adding a keyboard and they review several that are available as well as show you how to hook up the old T199 keyboard. \$15 a year for subscription.

Last winter I had the idea of a get together down around Atlantic City, NJ-well dont worry, I'm not going to kick that one around again, but the college in Trenton NJ-(Trenton State College, Dept of EE Tech, Hillwood Lakes CN 550, Trenton, NJ, 08625) across the line from Philadelphia Pa has a weekend flea market and computer and electronic seminars-commercial booths club's tables-non profit outfits. It has been going on for about 7 years every spring, next April 19 and 20 contact Steve Leon, 200 Winston Dr. Cliffside Park, NJ 07010 call evenings at 201-886-1658. Well here is a chance to meet many in the computing field, and an opportunity for east coasters to meet and chew a few words-heck by April 20 the snow is hardly deep at all around here, most years anyways.

I came across two somewhat related articles this month, and since they pertain to most of us I thought I'd pass on a few tips for doing business by mail. In one of later issues of the Vancouver Sinclair User Group's newsletters, August or Sept 1985, a warning was issued to all about doing business with a certain mail order outfit in one of the states. The place was mentioned by name, but for the life of me I can not locate the letter. It wasn't well known, well by me anyway. The complaint was a cashed check and after a couple months no merchandise.

A couple days later, I get the latest issue of Modern Electronics, and there is an editorial on, Buying by Mail! Well if I may I will pass on a few tips included in the editorial-All mail-order merchandise (with noted exceptions) are covered by the Trade Regulation Rule of the Federal Trade Commission (FTC). If you have a problem write them at:

Federal Trade Commission
Enforcement Division
Washington, DC 20580

Some of the rules are:

> Shipment of a properly (see below) completed order must be made within 30 days after its receipt UNLESS shipment time is clearly stated in a solicitation, [allow 5-6 weeks for delivery]
> If a shipment is delayed, the seller must send you a notice within 30 days after receiving the order, or before the shipping time noted in the solicitation, that gives you a revised shipping date or notice that a shipping date cannot be determined- plus an option to cancel your order. The notice should also provide a way to respond, either an '800' telephone number, or a prepaid post card. ALSO you should be advised that non response is considered acceptance.

> Automatic cancellation-should occur if the seller cannot ship within 30 days after the original date, or shipping date cannot be determined. If you inform the seller that you agree to the indefinite shipping date, you still have the right to cancel any time prior to shipping.

> Refunds must be sent to you by 1st class mail within 7 days after the order is cancelled. Plastic refunds may be refunded within one billing cycle.

> Credit vouchers, script, due bills are NOT substitutes for a refund.

> Merchandise cannot be substituted that's different from what you ordered without your authorization; the seller's receipt of a properly completed order CAN BE CONSTRUED to mean the time at which he gets notice that a check or money order for the proper amount has been honored.

> NOT covered by FTC-plastic by telephone only.

-magazines and similar serial deliveries.

-C.O.D. orders

-FTC's Negative option Rule such as book and record clubs, mail-order photo finishers, and other in the service class, not merchandise.

> Fraud is in another ball park, the postal authority, the US Attorney's office, and if within your state, the local or state attorney General's office are the one's to contact.

> Poor service, not punishable by law, should be brought to the attention of the seller, and everyone who carried his ads, and all potential buyers. If you think you are getting the run around, get the matter to the head guy at the service, spell out

your complaint. Be clear, and level headed about it. He may not be aware of the problem yet. Then if no response in 3 weeks, open up your beef to the editor of the publications that handle his ads. Write to newsletters, daily papers, and tell your friends.

> I wish we could say that we were perfect, but I can't. The business of running a newsletter, is fairly straight forward. The problems are in lack of communication, on our part, or our subscribers part. We have one name, and cashed check and no address, because the one member thought the other had the address. The subscriber to be didn't have a note with the check. Hope fully the guy writes soon and complains, so at least we'll know where to mail his money or subscription. With our one address now I hope there will be less confusion.

> Thanks to Modern Electronics, editor Art Salsberg, for the data and here's their address: Modern Electronics Inc, 76 North Broadway, Hicksville, NY 11801. A decent publication for the people who miss the old Popular Electronics

At the October meet Wes left several catalogs from THOUGHTS & CROSSES, 37 Market St. Heckmondvike W. York-England-they have a hardware and software catalogs, they take VISA and Wes has had very good service with them. Ian Robertson also has much nice words for T & C.

SUNSEI ELECTRONICS, 2254 Taraval St. San Francisco, CA 94116
call 415-665-8330-ad for a QL, for \$299.00. Taking orders 11/1.

SYNWARE GROUP is publishing "MemoNotes", 4 times a year for Memotext and Memocalc users. \$13.95(US) write to MemoNotes,c/o Thomas Woods, PO Box 64, Jefferson, NH 03583 USA. Tape versions are available of the Memotext word-processor program with improvements-\$29.95, an EPROM version is \$34.95, write for data to Fred Nachbaur, Compartment 12, Mountain Station Group Box, Nelson, BC V1L 5P1 Canada.

Paul Hill, SINCUS

LOCAL CLUB NEWS
SINCUS MEETING DATES-
DECEMBER 18 1985

-----1986-----

JANUARY 15	JULY 16
FEBRUARY 12 *	AUGUST 20
MARCH 12 *	SEPTEMBER 17
APRIL 16	OCTOBER 15
MAY 21	NOVEMBER 19
JUNE 18	DECEMBER 20

7PM VESTAL PUBLIC LIBRARY-TV ROOM
* 2ND WEDNESDAY OF MONTH !!

THERE HAS BEEN INFORMAL DISCUSSION ABOUT A CHANGE OF MEETING DAY AND TIME TO SUNDAY AFTERNOON AND I WOULD WELCOME INPUT ON THIS AT UPCOMING MEETS. THE LATE NIGHT MEET IS DIFFICULT FOR SOME AND PERFECT FOR OTHERS-A SHOW OF HANDS?

Computus Interruptus

Part 5

or, the joy of using interrupts on your computer

-By Wes Brzozowski

Thanks for the ooh's and ahh's over last month's interrupt driven sprite program. Even though he doesn't do all that much, there is a certain novelty to seeing his happy face bouncing around the screen while we do other things. Although I said I'd explain that program this time, there are two big guys at the door who've "persuaded" me to take a little detour. (Or at least, that's the way it seems. Don't worry, we'll get back to the sprites sometime soon.)

Actually, I've gotten some complaints that I'm "dragging my feet" about discussing the Non Maskable Interrupt (NMI, for short). This may be so, and I DO listen carefully to what you have to say. In any case, since some of you haven't yet gotten around to entering that sprite program (summertime you know) this will give you a chance to get caught up. Furthermore, using the NMI will require you to build a bit of non-trivial hardware to get around a bug in the ROM. In this article, I'll show you what you need. You'll have a month to build it, and I'll show you how to use it next time. (Hopefully, we'll talk about sprites too.)

The hardware you'll need will include the "NMI Switch" shown in this article and the Universal LROS/AROS Development Board described in the November 1984 issue of SINCUS NEWS. The schematic will be reprinted here if space permits. (Those of you who joined SINCUS since the publication of that article who want a copy of that article should contact me personally (Enclose a stamped self addressed envelope. PLEASE DON'T SEND ANY MONEY for copying just yet.)

The LROS/AROS Development Board lets you run RAM in your cartridge bank. If you have a tape of the code from a Spectrum ROM, you can also have a SPECTRUM emulator. If you instead insert the code from the TS2068 home ROM, you can change the code to fix the NMI bug (or do whatever other tricks your hacking heart desires!) Note that the TS2068 code was written to be run in the cartridge bank. This causes some minor, but tolerable, problems. The Spectrum ROM codes run without a hitch.

In the mode we'll be using the board, it won't be compatible with an EMU-type emulator, or my own "Extra Simple Spectrum Emulator", because they all try to use the same memory space. Since the LROS/AROS Development Board can already function as a Spectrum emulator, this incompatibility is not a problem. (In case anyone's interested, it was by simulating the Spectrum ROM on this board that I originally became convinced the "Extra Simple Spectrum Emulator" was feasible.

If you're really good at soldering, you can build this board to fit the cartridge slot; mine does, and it's quite handy. However, since the NMI switch will have to be built to the rear connector (the necessary NMI line doesn't appear at the cartridge slot) it may be worthwhile to build the whole thing to the rear connector.

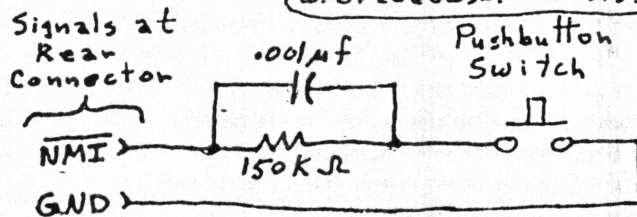
Since publication of the article on the board a year ago, the price of the 8kx8 RAM chips it uses have fallen from \$30 to under 5 bucks a piece. (Anyone who taunts me about what I must have spent to build the original board will get no further help from me!) Consequently, this gadget, which can be run as a Spectrum emulator (with the proper code), runs HOT Z-AROS! Ray Kingsley at least USED to sell the code on cassette), and can be used to develop your own cartridge programs, is already a worthwhile gadget to have around. Used with the NMI switch, it's dynamite!

Originally, I'd hoped that readers would supply some programs for use with this board, but we have a chicken-and-egg situation. Without programs, only a few readers have boards, and without many readers using them, not too many programs were developed. Never fear, I've been digging down into my old notes to get the info we need to start things going. Wait'll you see!

Interrupts? Oh, yes, we were talking about them, weren't we? Basically, the NMI works as follows. When the NMI line at the rear connector is brought MOMENTARILY to ground, the computer stops what it's doing and starts executing code at H0066. So that the computer doesn't lose its place, the address where it left off goes on the machine stack. Also, the status of the maskable interrupt is saved, and then the maskable interrupt is disabled.

"NMI Switch"

W. Brzozowski 9/25/85



The NMI cannot be disabled, so we can use it to interrupt most programs. (Some Spectrum programs will crash themselves if they "suspect" that we've added NMI capabilities. This is because the NMI is a useful tool for "hacking in" to copy protected programs.) In order to make NMI work for all programs,

our LROS/AROS board would have to be a good deal more complicated, and the number of "NMI protected" programs is very small. I don't see the benefit in doing so at present.

When we're done servicing our NMI, we want to send the computer back to what it was doing. All that's necessary is to restore whatever registers we've changed, and then use a RETN instruction. We don't use an ordinary RET in this case because it does not restore the status of the maskable interrupt as RETN does.

This all looks very nice, but there's a problem; address H0066 is in the ROM, and the ROM code there has a bug. (Whether or not the bug is intentional is subject to some debate.) What it SHOULD have done is as follows. If memory locations H5CB0/1 (23728/9 decimal) contain a non-zero address, that address would be jumped to. If, instead both locations contain zeros, the interrupt routine would simply return via RETN. Unfortunately, the ROM has it coded the other way around. The jump will only occur if these locations contain zeros. As such, the ROM code reduces the powerful nmi function to a reset switch which can disable the software.

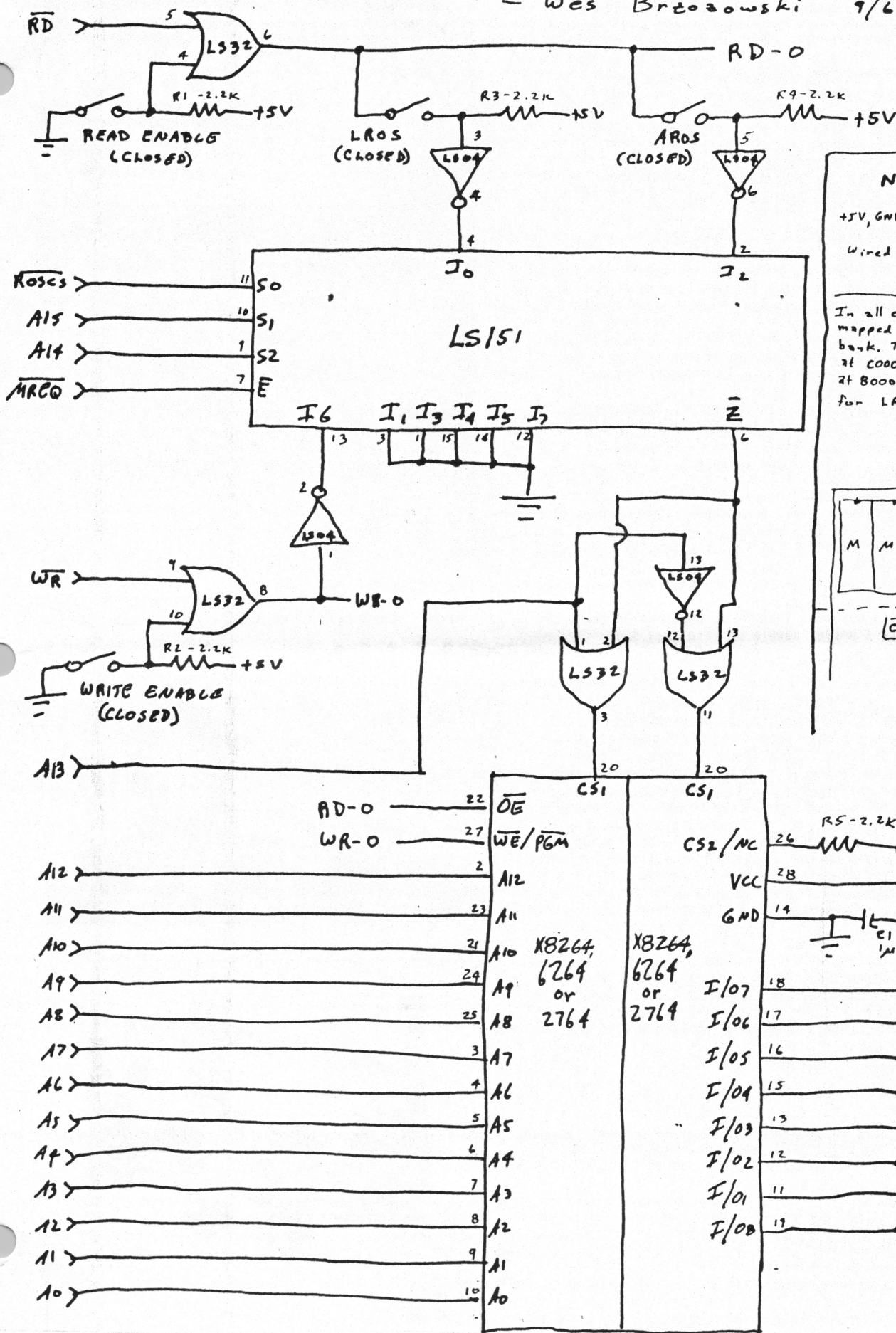
The good news is that we need to change only one byte to fix the program. Two ways to do this come readily to mind. We can build a circuit that disables the computer memory when the "bugfull" byte is being addressed, and then inserts the proper byte on the data bus. Alternately, we can build a circuit that completely replaces the ROM and its code. The second solution only costs a bit more, but you can do much more with it. Also, it's already been designed and debugged; it's the LROS/AROS Development Board. It should be noted that the board has been designed to accommodate RAM, ROM, or EEPROM. Make sure you outfit it with 6264 RAM chips.

Remember that interrupt driven print-screen program we used to play around with? Many of you discovered that it worked fine with BASIC, but that many commercial programs disabled the maskable interrupt, rendering it useless. An NMI version can't be disabled, and I've included some sample printouts to "wet your appetite". Can you identify the four Spectrum games that match the illustrations? How many of you "game Freaks" would like to make a full screen printed map of the "SW" jungle, or the "JSW" mansion? Now it's easy. (Provided you can get at each screen in the first place.)

Get that hardware built, and we'll see how to use it next time. As always, you're welcome to contact me, Wes Brzozowski, 337 Janice St., Endicott, NY 13760. If you wish, feel free to call (Not collect, and before 9:00 P. M. Eastern time, please) at (607) 785-7007. Happy Computing.

Universal LROS / AROS / Development Board

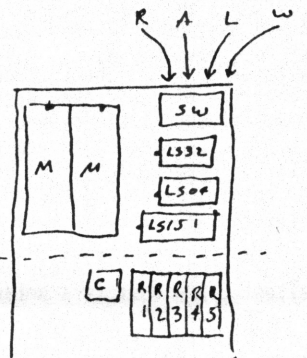
- Wes Brzezowski 9/6/84



Notes:

+5V, GND power connections
Wired to TTL not
shown

In all cases the memory is mapped into the cartridge bank. The write addresses start at 0000. READ addresses start at 8000 for AROS and 0000 for LROS



Attach horizontal connections (both sides) to both devices

WHERE DO WE GO FROM HERE

Being a conveniently intermittent column of rantings, ravings, and free advertising for those who catch the attention of
--- Wes Brzozowski

It's been along time since this column appeared here, but new developments in the home computer world continue to emerge. For the TS1000 users out there, Software Farm (in England) has produced a third new high resolution graphics game for your machine. For those just tuning in, it's possible through some clever and incredibly perverse software tricks to coax high resolution graphics out of the TS1000. Though the hardware wasn't designed for it, there isn't a very unobvious way to do the job, and the folks at Software Farm are going all out to make use of it.

The new program is called ZXtricator (the other two are Forty Niner and Rocket Man). I've heard that some U. S. distributors carry these programs, but I have no names just now. Any dealer who carries them can get a free mention here just by writing and telling me. In the mean time, I'd suggest checking flyers of the larger dealers.

TS2068 users will be pleased to hear that various Spectrum programs are being translated to work on a standard TS2068 (so that no Spectrum emulator is required). I've seen Fighter Pilot, a simulation of the F-15, and it's quite impressive. The option to use the TIMEX joystick ports is not only thoughtful, it's absolutely necessary. Flying the beast from the keyboard just can't be done by ordinary mortals. Our friends at the Knighted Computers get the praises for this one, and they're working on others. Check it out!

Speaking of joysticks, most users of Spectrum Emulators know by now that the TIMEX joystick ports don't work with Spectrum software. The Spectrum doesn't have a built in port, and Sinclair waited so long that before introducing one that several other outfits have produced their own. As a result, there are several (totally incompatible) joystick standards for the Spectrum, and many British programs start by asking which joystick you have. (The big menu that first comes up on the excellent Sabre Wolf is a prime example of this very sad situation.)

Nevertheless, the dominant format is called Kempston standard, and that's the one to have. A gentleman by the name of Steve Wyatt is producing "Kempston type" interfaces for the TS2068 to solve the Spectrum woes on this side of the Atlantic. Steve has sent me a sample of his interface, and I just can't express the fantastic difference it makes. It's great. Steve produces two versions of his product. One, which plugs into the cartridge port, is available from Russell Electronics, for \$19.95. This is fine for use with the Russell Romswitch, which doesn't use the cartridge slot, but it's obviously incompatible with cartridge based emulators. (I don't think Russell minds.)

Steve also makes a version that plugs into the TS2068 backplane, and he'll sell you either version directly for \$19.95. Be sure to specify which type you want. Since he's never been mentioned in this column before, his address is:

Steve Wyatt
4306 Jefferson St.
Hyattsville, MD 20781

and he won't mind you calling him at 301-779-7743.

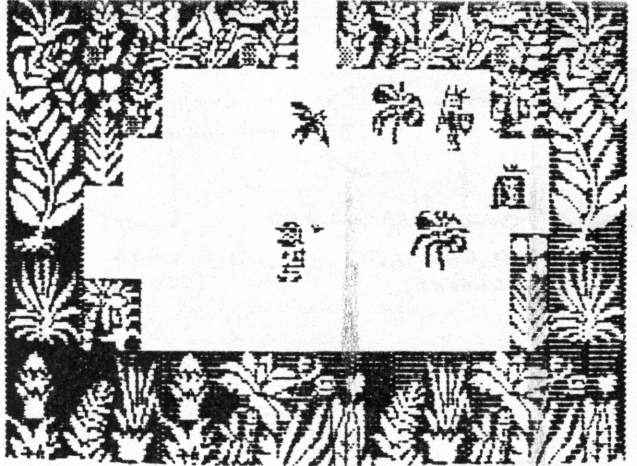
It should also be pointed out that the Kempston standard does not completely decode the I/O port, causing possible conflict with other peripherals. Steve's interface mimics the Kempston standard exactly, although he can also supply a decoded version should you prefer one. Check with him for pricing and availability on these.

As hinted above, I try not to give a dealer's address more than once ever in this column, so if I've given it in the past, I'll only mention the name in upcoming installments. This reduces the appearance of favoritism, which I avoid as best I can. Nevertheless, in a good cause and under proper circumstances, the rules should be trashed.

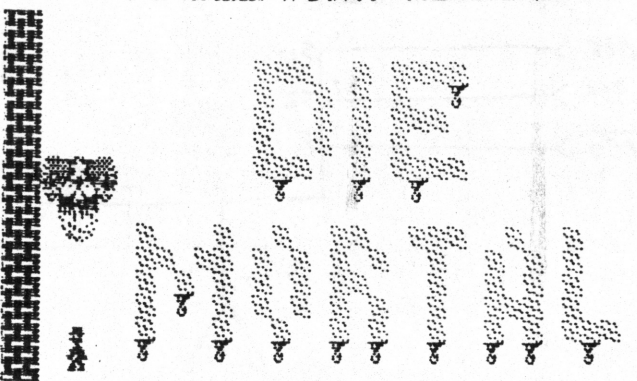
As usual, I love to get mail and phone calls. Anyone with questions or comments is welcome to write me:

Wes Brzozowski
337 Janice St.
Endicott, NY 13760

Like always. I freely correspond with anyone who wants to swap ideas or information, and will answer letters that just contain questions provided that they contain stamped, self-addressed envelopes. My phone number is 407-785-7007, and I do enjoy phone calls. Just try to call before 9:00 PM, EST, and don't call collect. Hope to hear from you.

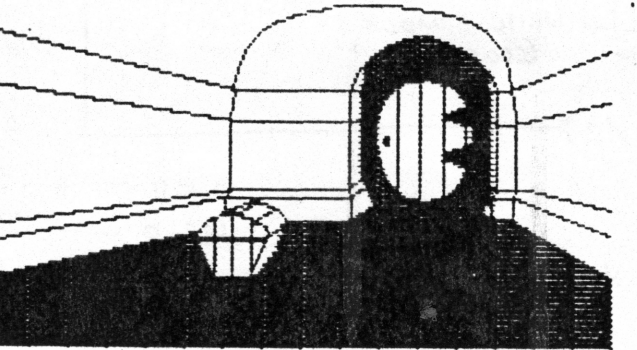


*** These screens were printed out using NMI hardware and software *

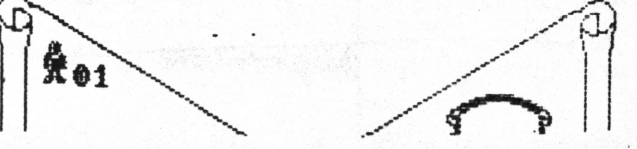
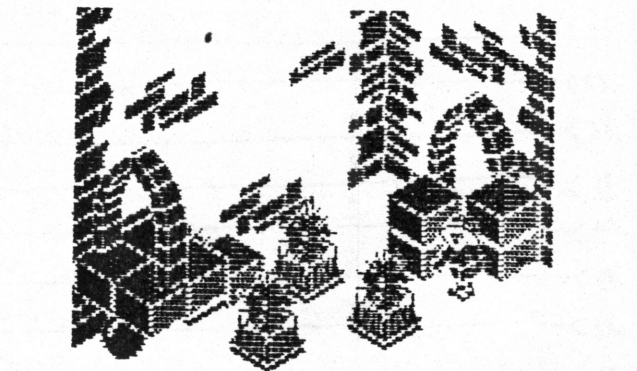


Entrance to Hades

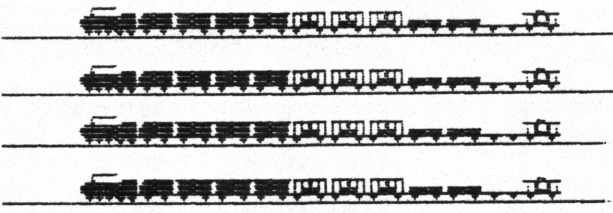
Items collected 000 Time 7:00am



You are in a comfortable tunnel like hall



TRAINS ###
by Stan Livingston



```

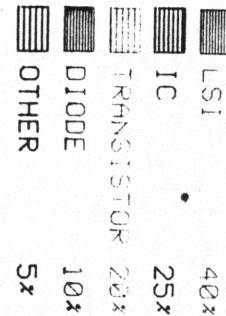
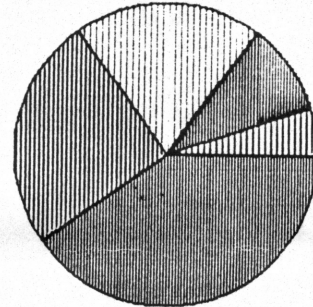
5 REM "TRAIN" by
  Stan Livingston SINUS
  Johnson City NY 1985
6 PLOT 0,159: DRAW 255,0
10 GO SUB 300
20 DIM a$(32)
30 DIM c$(32)
35 REM in lines 40,60,80 Use U
SER DEFINED GRAPHICS
40 LET c#="PR
"
50 DIM f$(32)
60 LET f#="0
"
65 REM line 70 enter speed of
train, try 1-15
70 INPUT "PAUSE?" ; n
80 LET a#="ABCDEFGHIJGFGFHHIHIJK
JKMMNO"
85 REM LINE 90 DIRECTION OF TR
AIN
90 INPUT "RIGHT OR LEFT ?"; D#
100 IF D#="R" OR D#="L" THEN GO
TO 240
110 PRINT AT 1,0; a#
120 FOR b=1 TO 32
130 LET e#=c$(1)
140 LET c#=c$(2 TO 32)+e#
150 LET b#=#(1)
160 LET a#=#(2 TO 32)+b#+ " "
170 PRINT AT 1,0; a#
180 PRINT AT 0,0; c#
190 PAUSE n
200 IF b=32 THEN LET b=1
210 IF CODE INKEY#=13 THEN CLS
TO 6
220 NEXT b
230 STOP
240 PRINT AT 1,0; a#
250 PRINT AT 0,0; f#
260 FOR b=1 TO 32
270 LET g#=f$(32)
280 LET f#=#+f#
290 LET a#=#(32)
300 LET b#=#+a#
310 PRINT AT 1,0; a#
320 PRINT AT 0,0; f#
330 PAUSE n
340 IF b=32 THEN LET b=1
350 IF CODE INKEY#=13 THEN CLS
TO 6
360 NEXT b
370 STOP
380 FOR x=65368 TO 65368+143
390 READ y: POKE x,y
400 NEXT x
410 DATA 6,63,127,255,127,63,29
0
430 DATA 0,255,255,255,255,255,
201,136
440 DATA 63,255,255,255,255,255
239,193
450 DATA 31,63,127,127,127,255,
0,0

```

```

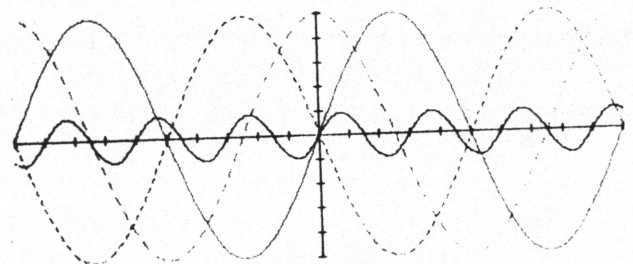
460 DATA 254,254,254,254,254,25
5,50,16
470 DATA 255,127,127,127,127,25
5,50,16
480 DATA 255,254,254,254,254,25
5,20,0
490 DATA 127,73,73,79,79,255,11
0,32
500 DATA 254,146,146,242,242,25
5,20,0
510 DATA 0,0,0,127,127,255,56,1
0
520 DATA 0,0,0,254,254,255,20,3
530 DATA 0,0,0,0,0,255,100,10
540 DATA 0,0,0,0,0,255,20,0
550 DATA 3,255,0,0,0,255,56,1
0
560 DATA 192,255,48,50,242,255,
20,6
570 DATA 0,0,0,0,0,0,0,4
580 DATA 0,0,0,0,0,0,240,4
590 DATA 0,0,0,0,0,0,250,0
600 RETURN

```



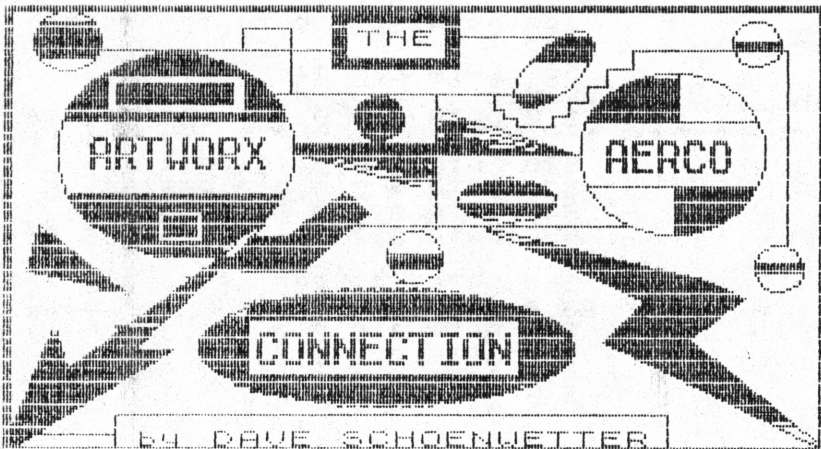
-----PIE GRAPH-----
Stan got a TRS model CR-115 for \$89 at Radio Shack, a small four color plotter, 40 or 80 characters per line, 64 type sizes, underlining, hooks into centronics II. Pretty nifty! can print side ways quite easily. Plain paper rolls are cheap too.

-----SINE AND COSINE CURVES-----



AERCO SCREEN COPY ROUTINE FOR ARTWORX

DISASSEMBLY OF CODE IN PRINT BUFFER



```

0 REM THIS PROGRAM WILL ALLOW SCREEN COPIES TO BE SENT
  TO A GRAPHICS PRINTER WITH AN AERCO INTERFACE
  BY DAVE SCHOENWETTER   SINCUS 21-SEP-1985
10 POKE 26703,0: POKE 26704,91
20 RESTORE 100
30 FOR f=23296 TO 23423: READ a: POKE f,a: NEXT f
40 STOP
100 DATA 254,1,40,1,201,0,0,0
102 DATA 17,112,91,6,8,26,79
104 DATA 205,96,91,19,16,248,33
106 DATA 0,64,17,120,91,6,8,26
108 DATA 79,205,96,91,19,16,248
110 DATA 6,32,22,128,14,0,30
112 DATA 126,126,162,40,3,123
114 DATA 177,79,36,203,59,48
116 DATA 244,205,96,91,37,37,37
118 DATA 37,37,37,37,37,203,58
120 DATA 48,225,44,16,220,14,13
122 DATA 205,96,91,175,181,32
124 DATA 196,62,8,132,103,254
126 DATA 88,56,188,201,0,0,0
128 DATA 219,127,230,16,32,250
130 DATA 121,211,127,0,219,127
132 DATA 0,0,0,201
140 DATA 7,7,27,64,27,51,25,7
150 DATA 0,0,0,0,27,75,0,1
200 REM DATA line 140 IS THE SETUP CODES FOR THE PRINTER
210 REM DATA line 150 IS THE PRINTER GRAPHIC CODE
220 REM LINE 140 AND 150 ARE SET FOR THE EPSON RX80.
    CONSULT YOUR PRINTER MANUAL. PRINTER MUST BE
    CONFIGURED FOR CARRIAGE RETURN ONLY, LINE FEED
    NOT REQUIRED.
230 REM LINE SPACING IS SET AT 25/216 OF AN INCH. THIS
    IS A TRADEOFF SETTING TO ALLOW CIRCLES TO BE
    ROUNDED AND COMPLETE GRAPHICS COVERAGE FOR THE
    SCREEN COPY.
240 REM TO USE THIS PROGRAM WITH "ARTWORX" THE BASIC LINE
    2315 MUST BE ALTERED AS FOLLOWS:
    "2315 IF M=VAL"1190" THEN LPRINT CHR#1 :GO TO MENU
250 REM NOTE: WHEN THIS PROGRAM IS RUN, LPRINT WILL NOT WORK
    ONLY LPRINT CHR#1 WHICH WILL COPY THE CURRENT SCREEN
  
```

DAVE SCHOENWETTER
 1335 FARM to MARKET RD.
 ENDWELL, NEW YORK 13760


```

23296 5B00 FE01   CP 01
23298 5B02 2801  JR Z 5B05
23300 5B04 C9    RET
23301 5B05 00    NOP
23302 5B06 00    NOP
23303 5B07 00    NOP
23304 5B08 11705B LD DE,5B70
23307 5B0B 0608  LD B,08
23309 5B0D 1A    LD A,(DE)
23310 5B0E 4F    LD C,A
23311 5B0F CD605B CALL 5B60
23314 5B12 13    INC DE
23315 5B13 10F8  DJNZ 5B0D
23317 5B15 210040 LD HL,4000
23320 5B18 11785B LD DE,5B78
23323 5B1B 0608  LD B,08
23325 5B1D 1A    LD A,(DE)
23326 5B1E 4F    LD C,A
23327 5B1F CD605B CALL 5B60
23330 5B22 13    INC DE
23331 5B23 10F8  DJNZ 5B1D
23333 5B25 0620  LD B,20
23335 5B27 1680  LD D,80
23337 5B29 0E00  LD C,00
23339 5B2B 1E80  LD E,80
23341 5B2D 7E    LD A,(HL)
23342 5B2E A2    AND D
23343 5B2F 2803  JR Z 5B34
23345 5B31 7B    LD A,E
23346 5B32 B1    OR C
23347 5B33 4F    LD C,A
23348 5B34 24    INC H
23349 5B35 CB3B  SRL E
23351 5B37 30F4  JR NC 5B2D
23353 5B39 CD605B CALL 5B60
23356 5B3C 25    DEC H
23357 5B3D 25    DEC H
23358 5B3E 25    DEC H
23359 5B3F 25    DEC H
23360 5B40 25    DEC H
23361 5B41 25    DEC H
23362 5B42 25    DEC H
23363 5B43 25    DEC H
23364 5B44 CB3A  SRL D
23366 5B46 30E1  JR NC 5B29
23368 5B48 2C    INC L
23369 5B49 10DC  DJNZ 5B27
23371 5B4B 0E0D  LD C,0D
23373 5B4D CD605B CALL 5B60
23376 5B50 AF    XOR A
23377 5B51 B5    OR L
23378 5B52 20C4  JR NZ 5B18
23380 5B54 3E08  LD A,08
23382 5B56 84    ADD A,H
23383 5B57 67    LD H,A
23384 5B58 FE58  CP 58
23386 5B5A 38BC  JR C 5B18
23388 5B5C C9    RET
23389 5B5D 00    NOP
23390 5B5E 00    NOP
23391 5B5F 00    NOP
23392 5B60 DB7F  IN A,7F
23394 5B62 E610  AND 10
23396 5B64 20FA  JR NZ 5B60
23398 5B66 79    LD A,C
23399 5B67 D37F  OUT 7F,A
23401 5B69 00    NOP
23402 5B6A DB7F  IN A,7F
23404 5B6C 00    NOP
23405 5B6D 00    NOP
23406 5B6E 00    NOP
23407 5B6F C9    RET
***** END OF LIST *****
  
```


As I have had the time, I have been playing around with ARTWORX, and I can not say enough nice things about it. However with nov several hours of use, I can see the difficulty of draving on the screen, almost like drawing on air. Reference points are difficult to remember, and draving perspective is somewhat difficult. I expect with more use I will be able to overcome some of the problems inherint. With the resolution available one can do a fair job of creating "art". Erasing is somewhat a bug, either too much or too little. By slowing the erase mode in FINE down to a 1 in velocity-detail can be saved from accidental erase. I have been using a sheet of acetate over the TV screen to help draw perspective-helps but is not the final answer. I like using ARC as you can draw arcs, circles and lines with little fuss. It is difficult to copy if the whole picture is drawn on the acetate, but if the outlines are sketched out the art takes shape better.

To use DAVE'S PROGRAMME- with AERCO type interface

1. On a new tape SAVE a bootstrap loader to LOAD "
 2. Type in Dave's Program- SAVE on the tape
 3. Write a second program to DELETE Dave's works and to LOAD "
 4. Strip the screen off the ARTWORX basic program-use MERGE to get the last BASIC and CODE loads, and SAVE them to tape.
- I have used Dave's program just to print out screens from the ARTWORX's and copied from this article to test for bugs. Works fine Dave- THANKS! We have done this for the owners of both Aerco Ifs and Artvorx to better enjoy this fine program even better. I say ve, Dave for the ac work and me for the pushing of him into doing it. Artvorx is available from RANEX Int'l. 17620 26 Mile Road, Washington, MI 48094



GAMMA
-PROGRAM-
by
Stan Livingston
SINCUS
Johnson City, NY

The factorial function (n!) (1*2*3...*x) accepts only positive integers. Gamma, a higher transcendental function, (Γ) bears the relationship to the factorial by $\Gamma(x) = n!(x-1)$, but accepts decimal and negative arguments as well. It is much used in the solution of statistical and engineering problems. First GOTO 340, the n GOTO 5.

POKE 65411,64 to create gamma character (Γ) on graphics (F).

```

5 PRINT "GAMMA": REM GAMMA
10 INPUT "PAUSE PERIOD?":G
20 INPUT "X?":X
30 IF X=0 THEN GO TO 320
40 IF X<0 THEN GO TO 50
50 IF X=INT X THEN GO TO 520
60 IF X=INT X THEN GO TO 320
70 LET Y=INT X
80 LET Z=X-(INT X)
90 LET U=Z+(A*(Z+2))+(B*(Z+3))
+(C*(Z+4))+(D*(Z+5))+(E*(Z+6))+(
F*(Z+7))+(H*(Z+8))+(I*(Z+9))+(J*
(Z+10))+(K*(Z+11))+(L*(Z+12))
100 LET U=U+(M*(Z+13))+(N*(Z+14
))+(O*(Z+15))+(P*(Z+16))+(Q*(Z+1
7))+(R*(Z+18))+(S*(Z+19))
110 LET T=1/U
120 IF Y>0 THEN GO TO 150
130 IF X<0 THEN LET Y=ABS Y: LE
T U=Y: GO TO 190
140 LET T=1/U: GO TO 230
150 FOR U=0 TO Y-1
160 LET T=T*(Z+U)
170 NEXT U
180 GO TO 230
190 FOR U=1 TO Y
200 LET T=T/(Z+(U-1))
210 NEXT U
220 IF U=0 OR U/2<>INT (U/2) TH
EN LET T=T*(-1)
230 PRINT "GAMMA ";X;"=";T
240 IF X=INT X THEN PAUSE G: CL
S: GO TO 20
250 LET T#=STR$ T
260 IF T#(1)="." THEN LET Z=4:
LET W#="" : IF X<0 THEN LET W#=""
270 IF T#(2)="." THEN LET Z=4:
LET W#="" : IF X<0 THEN LET Z=Z+
1: LET W#=""
280 IF T#(2)<>"," THEN LET Z=4:
LET W#="" : IF X<0 THEN LET Z=
Z+1: LET W#=""
290 IF ABS INT X>=4 THEN LET W#
=""
295 IF ABS INT X=4 THEN LET W#=""
300 LET Y=VAL T#(1 TO Z)
310 PRINT W#;(T-Y)+.0000000000000000
: PAUSE G: CLS: GO TO 20
320 PRINT "GAMMA ";X;"=";"INFIN
ITY": PAUSE G: CLS: GO TO 20
330 STOP
340 LET A=.5772156649
350 LET B=-.6558780715
360 LET C=-.0420026350
370 LET D=.1555386113
380 LET E=-.0421977345
390 LET F=-.0096219715
400 LET H=.0072189432
410 LET I=-.0011651675
420 LET J=-.0002152416
430 LET K=.0001280502
440 LET L=-.0000201348
450 LET M=-.0000012504
460 LET N=.0000011330
470 LET O=-.0000002056
480 LET P=.0000000061
490 LET Q=.0000000050
500 LET R=-.0000000011
510 LET S=.0000000001
520 LET T=1
530 FOR U=1 TO (X-1)
540 LET T=T*U
550 NEXT U
560 GO TO 230

```

THE BRICK WALL IN YOUR COMPUTER

>REPRINT from May 1984<

PART II

by Wes Brzozowski

Last time we found that every BASIC for every computer contains a "BRICK WALL" that can prevent the computer from doing what you want. Since the wall is different for every computer, we concentrated on the TS1000 and we found a couple of places where we could "smash into it". As mentioned last time, I don't consider this a "bug", since it absolutely must exist in some form. If there is a lot of available memory (and a lot of clever programmers to write the BASIC interpreter) the wall might be very hard to find, but it's in there somewhere!

To try to understand the wall, let's look at one of the problems presented last month. If we ENTER the following into a TS1000:

```
1 LET A = 1
2 LET B = A
3 LET B = B/3
4 LET B = B*3
5 IF A = B THEN PRINT "EQUAL"
6 IF A <> B THEN PRINT "NOT EQUAL"
```

and RUN the program, we get a surprising result. At the end, $A=1$ and $B=1$, so we should get "EQUAL" as answer. Instead we get "NOT EQUAL". Curious. If we change the order of lines 3 and 4, which shouldn't change the answer, we get "EQUAL" as an answer. Curiouser and curiouser. If, instead of changing lines 3 and 4, we transpose the A and B in line 5 (i.e. IF B=A THEN PRINT "EQUAL"), we will get BOTH "EQUAL" and "NOT EQUAL"!!!!?

Rather than get involved in binary numbers right now, let's imagine a computer that really works in decimal. Now it's possible to specify a number that contains an infinite number of digits. Alas, we can't build a memory large enough to contain such a number, even with memory as cheap as it is these days. What we need to do is work out a scheme that let's us store numbers that can be pretty large or pretty small, and hope that we never need to exceed the limit. We might do it with the following format:

EXPONENT	MANTISSA
XX	XXXX

The mantissa is a fraction with four decimal places. The exponent is a number that tells us how far to move the decimal point to the left or right. For example:

```
02 .1000 = 10
51 .1000 = 1 (with 50 zeroes)
00 .3720 = .372
-02 .1200 = .0012
05 .5432 = 54,321
```

Get the idea? Note that in the last case there aren't enough digits to exactly represent the number. As such 54321 and 54320 would be the same to the computer. This is the foundation of the "BRICK WALL".

Now if we walk things through the program that gives us funny answers, we get in lines 1 and 2:

```
A=B= 01 .1000 =1
```

In line 3 we divide 1 by 3. However, $1/3 = .3333333...$ where the 3's go on forever. The computer shortens this to

```
00 .3333 = .3333
```

In line 4, we multiply this by 3 to get $00 .9999 = .9999$. Note that .9999 is "NOT EQUAL" to 1, even though they're very close! Therefore, the computer prints "NOT EQUAL".

Now let's try the second case, where we change the order of lines 3 and 4. In line 3, we multiply by 3, where

```
3 x 1 = 3 = 01 .3000
```

In line 4 we divide by 3, to get $01 .1000 = 1$. The result is still 1, so we get "EQUAL" as an answer. Although the TS1000 does these contortions in binary and there are many more digits in a number, the same problems occurs.

The "BRICK WALL" is revealed!

Could the BASIC interpreter have been rewritten so that the "EQUALS" test would pass if the number were merely "ALMOST EQUAL"? The answer is "Yes", in fact, some BASICS operate in this manner. It's possible for this reason that the TS2068 always gives "EQUAL" as an answer to this program. However, this can also have it's problems, since there could be cases where it would falsely call two numbers equal, when they really should not be. The "BRICK WALL" is still there; it's just moved to a different place!

We still haven't discussed the case where both "EQUAL" and "NOT EQUAL" appear together. Did I say that the TS1000 NEVER passes the "EQUALS" test when the numbers are almost equal?

(No, I didn't, look again.) Apparently, "ALMOST EQUAL" might be good enough, depending on the order of the numbers being tested. If this seems unreasonable, then I'll have to concede this is more of a "bug" than a "BRICK WALL" problem. Nevertheless, it's a great bug. It's somewhat amusing to be able to show two numbers to be equal and not equal at the same time. If there are some kids in your neighborhood who are "too smart" with computers, show that problem to them. It'll put them in their place.

For space reasons, we'll have to cover the FOR loop problem next time, although there's enough information for the reader to figure it out if they haven't already done so. Also, having thoroughly disgraced the TS1000 here, we'll continue to pick on the TS2068.


```

11 REM "spheri"
21 BORDER 0
31 CLS
141 INPUT "Lower Theta Limit:");
a1
151 INPUT "Upper Phi Limit:");b2
161 INPUT "Upper Theta Limit:");
b1
171 INPUT "Lower Phi Limit:");a2
181 INPUT "Slices in Theta:");n
191 INPUT "Slices in Phi:");m
201 INPUT "Observation Angle:");
a
211 PRINT "S"
221 LET u=.0174532925
231 LET a=a*u
241 LET cs=COS (a)
251 LET si=SIN (a)
261 LET h1=(b1-a1)/127: LET h2=
(b2-a2)/(n-1)
271 LET h3=(b1-a1)/(m-1): LET h
4=(b2-a2)/127
271 LET m1=999999999: LET m2=m1:
LET n1=-m1: LET n2=n1
281 FOR y=a2 TO b2 STEP h2
291 FOR x=a1 TO b1 STEP h1
301 GO SUB 611
311 NEXT x
321 NEXT y
331 FOR x=a1 TO b1 STEP h3
341 FOR y=a2 TO b2 STEP h4
351 GO SUB 611
361 NEXT y
371 NEXT x
421 LET t1=(n1-m1)/2
431 LET t2=(n2-m2)/2
441 LET w=t1/t2
451 IF w<1.279830 THEN GO TO 48
1
461 LET xs=127: LET zs=127/w
471 GO TO 491
481 LET xs=99*w: LET zs=85
491 FOR y=a2 TO b2 STEP h2
501 FOR x=a1 TO b1 STEP h1
511 GO SUB 691
521 NEXT x
531 NEXT y
541 FOR x=a1 TO b1 STEP h3
551 FOR y=a2 TO b2 STEP h4
561 GO SUB 691
571 NEXT y
581 NEXT x
591 STOP
605 GO SUB 791
611 LET xt=xt-yt*cs
621 LET zt=zt-yt*si
631 IF xt>n1 THEN LET n1=xt
641 IF xt<m1 THEN LET m1=xt
651 IF zt>n2 THEN LET n2=xt
671 IF zt<m2 THEN LET m2=xt
681 RETURN
691 GO SUB 791
701 LET xt=127+INT (xs*(xt-yt*c
s-n1+t1)/t1)
711 LET zt=87-INT (zs*(zt-yt*si
-n2+t2)/t2)
715 IF xt<0 THEN LET xt=0
716 IF xt>255 THEN LET xt=255
721 PLOT xt,zt
731 RETURN
791 LET xa=x*u: LET c1=COS (xa)
: LET s1=SIN (xa)
801 LET ya=y*u: LET c2=COS (ya)
: LET s2=SIN (ya)
821 LET xt=(c1)*c2
831 LET yt=(c1)*s2
841 LET zt=s1
851 RETURN

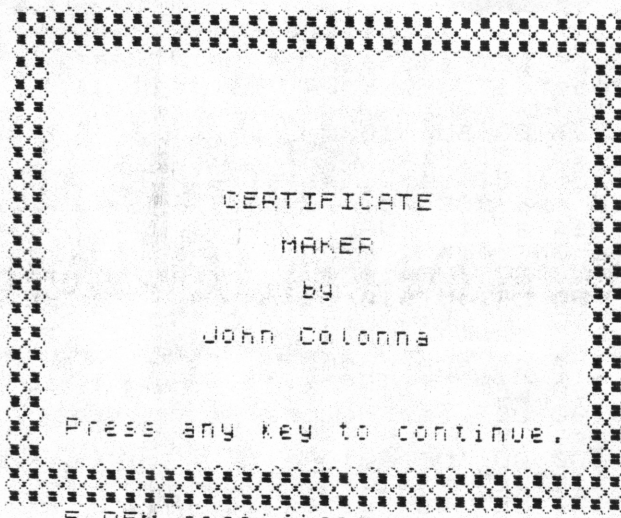
```

```

5 REM "output"
10 CLS
20 LET vt=1
25 LET a$="SINCUS NEXT MEET Oc
tober 17 WEDNESDAY Here at 1st C
ity"
27 GO SUB 1030
28 LET vt=4
35 LET a$="Classes at VPL OCT
25 and NOV 20, CHESS MATCH **OO
T 14 at the VPL SUNDAY 2pm** co
me on down"
40 GO SUB 1030
50 LET vt=10
60 LET b$="Lines 10-170 to see
"
70 GO SUB 2010
80 LET vt=11
90 LET b$="How to Print lines
or"
100 GO SUB 2010
110 LET vt=14
120 LET b$="Lines 1000-2100 to"
130 GO SUB 2010
140 LET vt=15
150 LET b$="See the routines"
160 GO SUB 2010
170 LET vt=19
180 LET a$="Copied from K-POWER
by T.Cekolin our member from Mo
bile AL"
190 GO SUB 1030
200 PAUSE 500: GO TO 1
1000 REM ---OPTIONAL LINE BREAK
SUBROUTINE---
1010 REM **USE THIS IF YOU WANT
THE OUTPUT SUBROUTINE TO BE ABLE
E TO HANDLE LINE THAT ARE LONGER
THAN YOUR COMPUTERS SCREEN IS W
IDE
1030 IF LEN a$>32 THEN GO TO 103
0
1040 LET b$=a$
1050 LET a$=""
1060 GO TO 2010
1070 RETURN
1080 LET y=32
1090 FOR x=2 TO 33
1100 IF a$(x)=" " THEN LET y=x-1
1120 NEXT x
1130 LET b$=a$( TO y)
1140 LET a$=a$(y+2 TO )
1150 GO SUB 2010
1160 LET vt=vt+1
1170 GO TO 1030
2000 REM here's the output subr
2010 LET m=LEN b$
2020 IF m/2<>INT (m/2) THEN LET
b$=b$+" "
2030 IF m/2<>INT (m/2) THEN LET
m=m+1
2050 FOR n=1 TO m/2
2070 PRINT AT vt,16-n;b$( TO n)
b$(m-n+1 TO )
2080 NEXT n
2100 RETURN

```

"spheri" and "output" from Tony Cekolin, Mobile, AL. Tony adapted "spheri" from June 1984 *Creative Computing* and is very SLOW! "output" is copied from *K-Power*. Spheri may take up to 20 minutes to begin to plot. You are asked for upper and lower x and y or phi and theta limits. Then you are asked for the number of slices you want-cross sections. The controlling equations are lines 821 and 831. If someone can come up with more good rectangular or spherical coordinate systems which create more interesting surfaces, write me: Tony Cekolin, 3701 Mossvale Dr. Apt 11-1, Mobile AL 36608.



CERTIFICATE
 MAKER
 by
 John Colonna

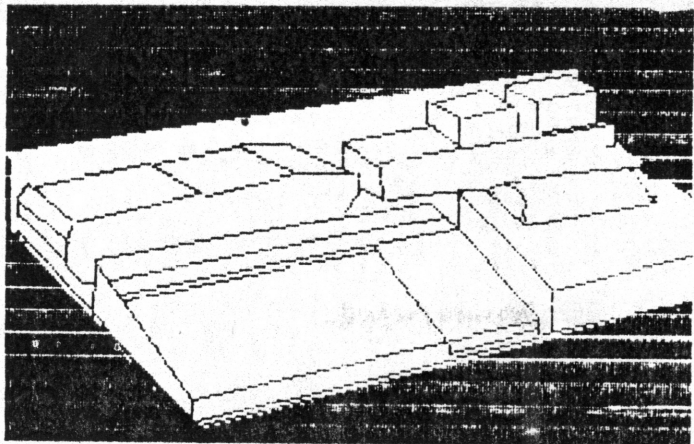
Press any key to continue.

```

0000 REM certificat
0001 LOAD ""SCREEN$
0010 BORDER 6: RESTORE GO SUB
9000 PRINT AT 18,3: FLASH 1;"Pre
9001 ss any key to continue,"
0000 PAUSE 0
0000 CLS
0000 INPUT "How many lines?(1-8)
0001 IF l>8 THEN GO TO 200
0002 IF l=8 THEN LET c=4
0003 IF l=7 THEN LET c=5
0004 IF l=6 THEN LET c=6
0005 IF l=5 THEN LET c=7
0006 IF l=4 THEN LET c=8
0007 IF l=3 THEN LET c=9
0008 IF l=2 THEN LET c=10
0009 IF l=1 THEN LET c=11
0010 FOR i=1 TO l
0011 INPUT "Print line (1-25 cha
0012 c#):" c#: PRINT AT y,(32-LEN c#)
0013 c#
0014 LET y=y+2
0015 PRINT
0016 NEXT i
0017 PRINT AT 20,2:"A B C D E F
0018 G H I J K L M N"
0019 PRINT AT 21,2:"O X = + o ||
0020 O * + * * * O O"
0021 INPUT "Which graphics symbo
0022 l?":a#
0023 FOR i=0 TO 31: PRINT AT 0,i
0024 a# : NEXT i
0025 FOR i=0 TO 31: PRINT AT 1,i
0026 a# : NEXT i
0027 FOR i=1 TO 18: PRINT TAB 0;
0028 OVER 1;a#;a#;TAB 30;OVER 1;a#;
0029 a# : NEXT i
0030 FOR i=1 TO 64: PRINT a#): N
0031 EXT i
0032 INPUT "COPY or AGAIN? (C/A)
0033 c#
0034 IF c#="c" OR c#="C" THEN CO
0035 PY GO TO 8200
0036 IF c#="a" OR c#="A" THEN GO
0037 TO 150
0038 STOP
0039 REM UDG
0040 DATA 255,255,195,195,195,19
0041 5,255
0042 FOR a=0 TO 7
0043 READ b: POKE USR "O"+a,b
0044 NEXT a
0045 DATA 129,66,60,60,60,60,66,
0046 140
0047 FOR a=0 TO 7
0048 READ b: POKE USR "X"+a,b
0049 NEXT a
0050 DATA 0,255,255,0,0,255,255,
0051 0
  
```

```

9120 FOR a=0 TO 7
9130 READ b: POKE USR "="+a,b
9140 NEXT a
9150 DATA 0,24,24,126,126,24,24,
9160 0
9170 FOR a=0 TO 7
9180 READ b: POKE USR "+"+a,b
9190 NEXT a
9200 DATA 0,60,126,102,102,126,6
9210 0,0
9220 FOR a=0 TO 7
9230 READ b: POKE USR "o"+a,b
9240 NEXT a
9250 DATA 102,102,102,102,102,10
9260 2,102,102
9270 FOR a=0 TO 7
9280 READ b: POKE USR "||"+a,b
9290 NEXT a
9300 DATA 60,126,195,195,195,195
9310 ,126,60
9320 FOR a=0 TO 7
9330 READ b: POKE USR "O"+a,b
9340 NEXT a
9350 DATA 204,204,51,51,204,204
9360 51,51
9370 FOR a=0 TO 7
9380 READ b: POKE USR "X"+a,b
9390 NEXT a
9400 DATA 24,24,0,219,219,0,24,2
9410 4
9420 FOR a=0 TO 7
9430 READ b: POKE USR "+"+a,b
9440 NEXT a
9450 DATA 195,195,60,60,60,60,19
9460 5,195
9470 FOR a=0 TO 7
9480 READ b: POKE USR "X"+a,b
9490 NEXT a
9500 DATA 0,238,238,0,0,238,238,
9510 0
9520 FOR a=0 TO 7
9530 READ b: POKE USR "::"+a,b
9540 NEXT a
9550 DATA 231,231,231,0,0,231,23
9560 1,231
9570 FOR a=0 TO 7
9580 READ b: POKE USR "::"+a,b
9590 NEXT a
9600 DATA 0,126,66,66,66,66,126
9610 0
9620 FOR a=0 TO 7
9630 READ b: POKE USR "O"+a,b
9640 NEXT a
9650 DATA 255,129,129,129,129,12
9660 9,129,255
9670 FOR a=0 TO 7
9680 READ b: POKE USR "O"+a,b
9690 NEXT a
9700 RETURN.
9999 SAVE "certificat" LINE 1: B
EEP 1,32: PRINT AT 9,9: INVERSE
1;"Program Saved": INPUT " Rewi
nd, then press 'ENTER' to verify
." :q#: VERIFY "certificat" BEE
P 1,0: PRINT AT 13,7: FLASH 1:"Pr
ogram Verified."
  
```



=== BUFRPRINT === (Version 3.0) (dmp 1985)

This is a machine code routine that will let you print out parts or all of your MTERM memory buffer to a full-size printer via the TASMAN cpi.

First, LOAD the "tasbuff" code supplied with the TASMAN cpi. Next, type in the following BASIC program to load up the Bufrprint code:

```

10 LET SUM=0
20 FOR I=64000 TO 64263
30 READ A: LET SUM=SUM+A:POKE I,A
40 NEXT I
50 IF SUM=32333 THEN PRINT "CODE O.K.": STOP
60 PRINT " ERROR IN CODE! RE-CHECK ": STOP
4000 DATA 13,13,20,1,32,80
4006 DATA 114,105,110,116,63,32
4012 DATA 20,0,32,33,141,92
4018 DATA 126,33,143,92,119,33
4024 DATA 60,92,203,134,33,4
4030 DATA 92,126,254,255,32,251
4036 DATA 205,0,91,33,0,250
4042 DATA 6,15,126,215,35,5
4048 DATA 32,250,56,4,92,254
4054 DATA 255,40,249,203,137,58
4060 DATA 8,92,254,121,32,2
4066 DATA 203,201,215,62,13,215
4072 DATA 203,129,42,75,92,17
4078 DATA 86,104,237,82,124,181
4084 DATA 202,234,250,235,33,86
4090 DATA 104,126,254,13,40,11
4096 DATA 254,10,202,2,251,62
4102 DATA 31,150,48,17,126,215
4108 DATA 203,73,40,11,126,205
4114 DATA 248,250,229,33,59,92
4120 DATA 203,142,225,35,27,122
4126 DATA 179,202,234,250,56,4
4132 DATA 92,254,255,202,203,250
4138 DATA 58,8,92,254,112,32
4144 DATA 4,203,201,24,54,254
4150 DATA 109,32,9,62,13,205
4156 DATA 248,250,203,137,24,41
4162 DATA 284,102,32,4,203,193
4168 DATA 24,33,254,115,32,4
4174 DATA 203,129,24,25,254,32
4180 DATA 32,17,229,213,197,1
4186 DATA 0,0,605,233,48,205
4192 DATA 235,31,193,209,225,24
4198 DATA 4,254,226,40,31,229
4204 DATA 33,140,92,54,2,225
4210 DATA 203,65,194,91,250,229
4216 DATA 213,197,6,0,14,2
4222 DATA 205,233,48,205,235,31
4228 DATA 193,209,225,195,91,250
4234 DATA 33,60,92,203,198,203
4240 DATA 73,200,62,13,205,248
4246 DATA 250,201,197,213,229,205
4252 DATA 62,91,225,209,193,201
4258 DATA 62,13,119,195,107,250

```

You probably won't need this BASIC again, but SAVE it somewhere just in case. Now RUN it. If you get the error message, you made a mistake typing in the bytes. If everything is "OK",

then save "tasbuff" and "bufrprint" together on tape: SAVE "tasbuff"CODE 23296,256: SAVE "bufrprint"CODE 64000,264

** INSTRUCTIONS FOR USING BUFRPRINT VERSION 3.0 **

1. When your MTERM buffer contains the data that you want to print out, exit to BASIC via Main Menu option E. Your screen may show some garbage or nothing at all.

2. Enter this command directly: LOAD "CODE": LOAD "CODE": PRINT USR 64015 and start the tape with "tasbuff" and "bufrprint." The program will start with the "PRINT?" prompt.

3. If you press <y>, the buffer will be printed out from the beginning. Be sure your printer is on and ready to go. If you press <n>, the buffer will come out on your screen without printing.

4. While the program is running, the following keys are used to control it: <p> activates the printer. Whatever follows gets printed. <m> deactivates printer. Buffer will continue to scroll out on your monitor. This key also gives you Line Feeds if pressed more than once.

(You can flip back and forth between <p> and <m> as many times as you like, to print out sections of the buffer.) <f> for FAST mode. This kicks Bufrprint into high gear to skip through the buffer quickly.

<s> for SLOW mode. Bufrprint starts out in slow mode after you answer the "PRINT?" prompt.

(Again, you can flip between FAST and SLOW whenever you want.) <SPACE> or <BREAK> for temporary stop. Press any other key to resume. Note that if the key you press to resume is a Control Key, it will have its usual effect. If you press <SPACE> or <BREAK> repeatedly, you can creep through the buffer one character at a time.

5. To exit the program before the entire buffer has come out, use the Timex STOP command (Symbol Shift/A).

I recommend that you permanently set your DSPW to 80, so you can take advantage of the full width of your printer.

Note. This program occupies a section of memory that is not occupied by MTERM; however, MTERM does use this section during its normal operation. So, if you LOAD Bufrprint and MTERM together, and then go on-line, the Bufrprint code will be obliterated. Don't try to use it or you'll crash. Just exit to BASIC and load Bufrprint.

The advantage of this version of Bufrprint (over the BASIC edition I sent up a while ago) is that it uses none of the low-address memory used by the buffer. I have used it to print out a completely full (27256 bytes) buffer.

As always, I would appreciate any of your questions or suggestions for improvements.

David Prantis
74756,164

KOALA PAD W/ZEBRA GRAPHICS INTERFACE
INCLUDING ZPAINT and
TECH DRAW

by Arthur Mortensen, Corresponding Member, New York, New York

At \$89.95 for the Koala Pad, I/F and ZPAINT, this is a fair alternative to buying a new computer for graphics. \$19.95 for TECH DRAW (© 1985 by ZEBRA Systems, Inc.) completed the package, which arrived ten days later with items that will discuss later (when they work).

A Koala Pad is a digitizing table where a grid is used to read the position of a stylus that the user presses against a flat surface. In my experience, the pad is far superior to a mouse as you can emulate freehand drawing and you don't have to have a clean desk to use it. As delivered, the pad and the I/F (an uncased but heavily shielded circuit with two ports for pads and an edge connector for your AERCO or whatever) worked perfectly and included clear instructions for installation.

ZPAINT, a simple but effective color graphics package, has the expected selections for paper color (which may be changed at any time without wiping out the drawing), ink, brush or pen, erase or draw, line or freehand, and circle. It is pleasant to play with but images created cannot be printed as the gray scaling of colors does not register as anything but black. A Tasman I/F in combination with a Radio Shack color printer might work if you can write a driver for it. For my wife, a prize winning painter ZPAINT proved more fun for me; she found it similar to working with oil-based pastels.

TECH DRAW is an altogether different kind of program. Al Hartman, the chief hacker at ZEBRA, set out to emulate MacPaint, with most user interaction between the screen and the Koala Pad (instead of a mouse). Its features include

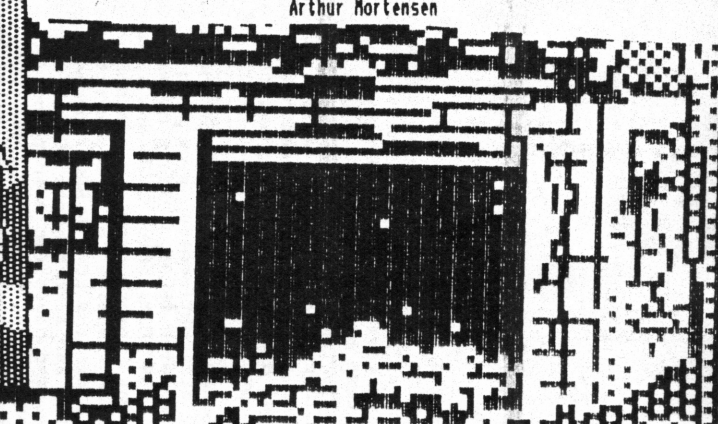
- A) Brush selection (16 in all)
- B) Shade and pattern selection (16 in all)
- C) Filters for permitting drawing in only vertical or horizontal directions (if desired)

- D) A line drawing mode (point to point selection, then connected with a button push)
- E) A circle drawer (seems useless until you note it works with the selected brush and shade)
- F) A fill mode
- G) An undo mode (which can be undone)
- H) A full screen text editor which includes a choice of small, medium or large type in bold, plain or Italic.
- I) An I/O menu to select a small (2 x 4 inch) or a large (8 x 10 1/2) image on your 80 column printer, save, load, verify, and printing to either the Alphacom or TS2040 thermal printers. For this you customize to suit printer and I/F type when creating your backup tapes. The customization list includes Epson, Okidata, Gorilla Banana, and a few other dot matrix printers, and either the Tasman or Aerco I/F's. As these print drivers happen to be on a separate file, I have no doubt a clever person could add them to other programs. Al Hartman would probably help you.

Yes, Dad, but does it work? It works brilliantly. How brilliantly? Well, it does what the ad copy says, and it does it in a hurry (machine code, naturally). The enclosed printouts probably don't do the thing much justice. I am not an artist and the ribbon on my FX is a tad old but I find it hard to believe anyone could make a better program of this type for the TS2068. It has a wide variety of uses, from holiday cards to circuit design. True, it won't take data from VU-CALC and make a pie chart but you can make one easily enough. And consider this. While MacPaint has all kinds of cute scaling tricks and libraries of shapes, you have to spend \$2000 bucks to get the computer, a second drive and a printer. Why bother? TECH DRAW and the Koala Pad cost a grand total of \$119.95 and with patience, time and effort it's unlikely you could do better by blowing the extra \$1881.05 on a Macintosh. Of course a disk drive would make it better...

...about which I write in my next contribution.

Arthur Mortensen



GOING TO DISK ON THE TS2068

by Art Mortensen

If you've bought a disk system, whatever variety, your next problem is what to do with your taped software. Your dealer may tell you that "real soon now" they'll have disk versions of your favorite software, but don't bet on it. How to move software from tape to disk?

Obviously, BASIC programs are the easiest. You just change all of your LOAD and SAVE code to match the appropriate commands in your disk operating system, then SAVE to disk. After that, no problem.

What about programs with code (most of the better ones)? This is fairly straightforward, even with a loader that can't be stopped with BREAK. Start by writing a phony line of code, i.e., 9999 REM. Then MERGE the loader. Try it with several different line numbers for the phony code to make certain you haven't accidentally overwritten a line of the loader. Then alter the LOAD & SAVE commands to suit your disk system (the Zebra/Portuguese TC2068 system requires LOAD *, SAVE *, and names for everything (no wildcard loads). SAVE the loader to disk. Then turn the computer on and off (absolutely clear everything). If there is a loading screen, and you want to keep it, LOAD " SCREEN\$. When it's in, SAVE it to disk. Again, clear everything. Then LOAD " CODE. So far, so simple, right?

Then write a little program, say,

```
10 FOR a=24500 TO 65534
```

```
20 IF PEEK a <> 0 PRINT PEEK a, a
```

```
30 NEXT a
```

No, don't run the thing from AUNTIL 3AM. Run it until you get the starting address of the program. Mscript, for example, starts around 32,020 or something. Then restart the program by first in direct mode LET a = (starting address + 5000). Then GOTO 20. If there's still code and addresses rolling across your screen, say N to "scroll?" and increase the value of a in the direct mode, up another thousand, say. At the first point you get a long stretch of a blank screen, BREAK. Decrease the value of a. If you GOTO 20 and so on until you get code again. Y to "scroll?" until you get an address followed by a lot of blank screen. That's most likely the high or ending address of the code. BREAK the program. Write down the high number. Delete the little program by simply hitting the line number and return, i.e., 10 <CR> 20 <CR> 30 <CR>, so as not to disturb your code. If your starting address is 27500 and the ending address 34500, the line is SAVE *code" 27500,7001. The last number is the number of bytes to save (37500-27500 + 1) (I always save one extra for reasons that will probably escape any decent programmer). The * is DOS's flag to indicate a save to disk. Your system may differ.

Using this method, I have moved Vu-3d, Flight Simulation, Tech-Draw, Mscript, Chess, and other programs to disk. In Tech Draw and Mscript, the reading and writing code (for pictures and text) is in assembly code and is beyond the scope of this article (or my current ability to program). Assembly programmers will hunt down the load/save routines and change them to suit the disk drive system. Even without those changes, seeing Mscript or Tech-Draw pop up in 10-15 seconds is a major pleasure, as is not worrying about backups, which are a snap to make with a disk system.

Some programs will drive you crazy in trying to get them to run from disk. A cute game by Jeff Naylor (Crisscross) will not work at all. I can save the code without trouble (it starts perilously near the system variables area). I can get the loader but cannot get the two to work together from disk. Jeff put some wild looking code in line 1, a NEW in life 5, so I knew well enough to start somewhere else on either a SAVE "CROSS" LINE or a GOTO to test it. Still didn't work. I tried eliminating the clever shift to white on white he used in line 1. Bombed. You try. Some programs use some slick tricks in the loader that you can get by, as the use of equations in GOTO statements, as in GOTO PI*PI/3. Just use programming sense. If there's a RETURN at the end of line 5 with no GOSUB prior, don't start there. One way to ease your way is to eliminate ONERR GOTO statements from the loader (what kept you from looking at it before you MERGE-ed it).

If anyone has a patch for TECH-DRAW or Mscript, please, PUBLISH IT in the newsletter. The system I use is the Zebra Systems drive (originally developed, in part, for the TC2068). I use an AERCO, so the print driver on Mscript was done for that, as is the customized one on Tech-Draw. Any assistance?

NEWS and VIEWS UPDATE

From ZX/TS Forum, South Florida User Group-Aerco Disk IF update Aerco will be upgrading memory expansion to 256K of RAM configured as either a RAM disc or a bank switched format. Hard disc capabilities as well as a Spectrum emulator are in the works. Also for those with Smart term II-here is speed dialer, POKE 54835,72: POKE 54836,4: POKE 54846,5: POKE 54847,3: POKE 54856,26: POKE 54857,44-probably work, fine only if you have touch dialing!

88-The latest E.A. Brown catalog is out-if you're not on his mailing list- write for their newest one.

E. Arthur Brown Inc.
3404 Punnee Drive
Alexandria, MN 56308

Several have taken advantage of the TS 2068 offer on page 5- here it is almost 2 whole years since that wack company goofed and people are STILL buying the 2068. Not much in the way of new stuff for the 2068, but a lot of the old favorites still available.

The Plotter, CCATS, Oregon City OR-RMG Enterprises will be carrying the QL for about \$300, and the flat screen Sinclair TV. Sinclair, USA will mail-order QLs, but dealers around the country will handle the software and the flat screen TV-RMG Enterprises, 1419 1/2 7th Street, Oregon City, OR 97045:tele:503-655-7484

From our most enthusiastic member in Toronto, Canada; Ian Robertson sends a copy of his column for the Sinc-Link, and I also note that he is one very active person on the modems: He has gone disc, the Amdek Andisk III 3" DD system for \$125-it is 2 three inch drives, power supply in a cabinet, cable. He got it from Peripherals Direct Ltd. PO Box 4301, Northbrook, IL 60065. call 312-498-9244. The Larken Electronics Disc Drive IF is being updated, this item was reported in last SINCUS NEWS, and apparently the bugs are being corrected, and the user friendly is lacking, but maybe better with latest update.

Ok to keep our word, we 'll tell you what we got Gary Ennis for his 2 and half years as editor of SINCUS NEWS; he had order from England the following items, a microdrive extension cable, a Kempston joystick IF and 12 blank micro drive cartridges, and since Wes had the order coming to his house, we in turn picked up the tab for the items. Again much thanks Gary, are you sure you dont want to keep on doing this ???...

SLUG, Louisville Ky, newsletter had a very timely little helper-a bright neon orange ty-wrap to mark your printer power supply cord!! I guess to keep a BIG mistake from occurring. Gary maybe you could sell some for the Portuguese 2068 power supplies too!

SPECIAL CLUB NEWS

A Special scroll of the screen and tip of the cartridge port to WES BRZOZOWSKI for entering the SYNCWARE programming contest this past spring and placing a respectable 2nd place!! Wes's 64 column driver program won him these laurels. Apparently the listing was either modified by SYNCWARE or copied incorrectly by several SYNCWARE readers who were quite irrate and called Wes to let them know of their problem. Wes's subscription had run out as had several others in the area and no one has seen the listing to help WES out of the pickle. Anyway Wes CONGRATS and the program works great!!

The upcoming holidays will give us pause from the daily business of making the bread that pays the bills. This has been an exceptional year for yours truly. The family's varnath and good health, additions and achievements far outweigh the problems, so I have much to be thankful for and much to look forward to. The club has continued to move forward, grow, publish and achieve new abilities thanks to the talents of many, who are so generous in giving of their time and talents. The many favorable comments received last meeting and in the mail make the task of getting the newsletter out a bit more fun, and much reflects on the great job that Gary did. The future continues to hold new ideas to tap, products to enjoy and best of all the friendships and acquaintances made thru this little machine. I hope all who read this learn something, or smile at something, or get an idea.....

WISH LIST

The Spectrum 128, disc IF, printer IF

Disc Drive Interface for a 2068, 2 drives and a pile of discs

a backup TS2068

Zebra Koala Pad and software

Modem and software

RGB 13" Monitor

Unlimited bank account

lots and lots of TIME!

the power to grant wishes

the ability to understand how to program in MC

the time to play with all of the above

someone to take the job as newsletter editor.

Thanks to all who contributed articles and programs for this issue. I hope many of you reading this will write a review- a program (short one)- an opinion or a tip on hard/software so that I don't have to write so much to fill up space. Again, Thank you and have a Merry Christmas and a Happy New Year.

Paul Hill
Editor/SINCUS NEWS

SEE YOU AT THE NEXT
MEETING.....

at the Vestal Public Library
December 18- Wednesday at 7pm

January 15- Wednesday at 7pm

Our GET WELL wishes to Bill
Tilley, Vestal -we miss ya!

Attached to many letters this
month are "LATE DUES NOTES"
if you got one, our book-
keeping shows you haven't
renewed your subscription,
if so this will be the last
letter. Please let us know
if you believe there is an
error.

Our next newsletter will be mailed
in late January or early Feb.

Any submissions, ad or article
must be in our hands by the 15th
of January.

Our ad rates-have been decreased
-due to drop in membership.

75 newsletters mailed down from 125.

Full page-\$11

1/2 page -\$7

1/4 page -\$4

Members get a one time per membership
ad of 22 lines by one column FREE.

Membership rates are \$8.00 per year-
for the newsletter which will be pub-
lished bimonthly.

SINCUS NEWS

PO BOX 36

JOHNSON CITY, NY 13790



STEVE ISHII
18414 DELOISE

CERRITOS CA

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